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REISSUE PATENT

Case No. 8371/9

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue
of U.S. Patent No. 5,981,940

Issued: November 9, 1999

Patentee: Robert Setbacken et al.

U.S. Reissue Patent Application
Serial No.: unassigned

Filed: October 29, 2001

For: ANGLE MEASURING SYSTEM
WITH A CLAMPABLE SHAFT

Examiner: unassigned

Art Unit: unassigned

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231
Box REISSUE

Sir:

Please amend original claims 2 and 3 of U.S. Patent No. 5,981,940 as follows:

2. (Amended) The angle measuring system according to claim 1

wherein the screw is guided through the pick-up shaft from [the] an end opposite the driveshaft, and [the] an end of the pick-up shaft facing the driveshaft has the slits.

3. (Amended) The angle measuring system according to claim 1

wherein the pick-up shaft is rotatably seated in a stator of the angle measuring system,

and the stator is connected with [the] a stationary element of the drive unit by a coupling in a manner fixed against relative torsion, but radially and axially resilient.

Please add claims 5-38 as follows:

5. The angle measuring system of claim 1, wherein said actuating element is a unitary member.

6. The angle measuring system of claim 1, wherein said actuating element moves in a helical manner when operative.

7. An angle measuring system comprising a coding disk for measuring the angular position of a pick-up shaft and a clamping device for clamping the pick-up shaft, fixed against relative rotation, to a driveshaft of a drive unit, and a clamping element comprising a slit in a clamping area, the system comprising:

an actuating element that directly contacts said pick-up shaft and is operative to directly spread said slit when rotated within said pick-up shaft.

8. The angle measuring system of claim 7, wherein said actuating element comprises a screw that is turned in said pick-up shaft.

9. The angle measuring system of claim 8, wherein said screw comprises an exterior thread in said clamping area.

10. The angle measuring system of claim 9, wherein said pick-up shaft comprises an interior thread that corresponds to said exterior thread.

11. The angle measuring system of claim 8, wherein said screw comprises an axially acting detent surface that is supported against an axial detent of said pick-up shaft during clamping.

12. The angle measuring system of claim 8, wherein said screw is guided through said pick-up shaft from an end opposite said driveshaft, and an end of said pick-up shaft facing said driveshaft has said slit.

13. The angle measuring system of claim 7, wherein said pick-up shaft is rotatably seated in a stator of said angle measuring system, and said stator is connected with a stationary element of said drive unit by a coupling in a manner fixed against relative torsion, but radially and axially resilient.

14. The angle measuring system of claim 13, wherein said coupling is made of spring sheet metal.

15. The angle measuring system of claim 13, wherein said coupling comprises spring arms extending axially and parallel with each other and comprise a parallel guide which is fixed against relative torsion.

16. The angle measuring system of claim 14, wherein said coupling comprises spring arms extending axially and parallel with each other and comprise a parallel guide which is fixed against relative torsion.

17. The angle measuring system of claim 7, wherein said actuating element is a unitary member.

18. The angle measuring system of claim 7, wherein said actuating element moves in a helical manner when operative.

19. An angle measuring system comprising a coding disk for measuring the angular position of a pick-up shaft, the system comprising:

an actuating element;

a clamping element comprising a slit adjacent to said actuating element, said clamping element forming, at least in part, an opening in which said actuating element is inserted, wherein movement of said actuating element with respect to said slit causes said slit to radially spread open so that said pick-up shaft and drive shaft engage one another so as to be fixed against relative rotation.

20. The angle measuring system of claim 19, wherein said actuating element comprises a screw that is turned in said pick-up shaft.

21. The angle measuring system of claim 20, wherein said screw comprises an exterior thread in said clamping area.

22. The angle measuring system of claim 21, wherein said pick-up shaft comprises an interior thread that corresponds to said exterior thread.

23. The angle measuring system of claim 20, wherein said screw comprises an axially acting detent surface that is supported against an axial detent of said pick-up shaft during clamping.

24. The angle measuring system of claim 20, wherein said screw is guided through said pick-up shaft from an end opposite said driveshaft, and an end of said pick-up shaft facing said driveshaft has said slit.

25. The angle measuring system of claim 19, wherein said pick-up shaft is rotatably seated in a stator of said angle measuring system, and said stator is connected with a stationary element of said drive unit by a coupling in a manner fixed against relative torsion, but radially and axially resilient.

26. The angle measuring system of claim 25, wherein said coupling is made of spring sheet metal.

27. The angle measuring system of claim 25, wherein said coupling

comprises spring arms extending axially and parallel with each other and comprise a parallel guide which is fixed against relative torsion.

28. The angle measuring system of claim 26, wherein said coupling comprises spring arms extending axially and parallel with each other and comprise a parallel guide which is fixed against relative torsion.

29. The angle measuring system of claim 19, wherein said actuating element is a unitary member.

30. The angle measuring system of claim 19, wherein said actuating element moves in a helical manner when operative.

31. An angle measuring system comprising a coding disk for measuring the angular position of a pick-up shaft and a clamping device fixed against relative rotation relative to a drive shaft of a drive unit, wherein said clamping device comprising an axial slit in a clamping area that is radially spread open by an actuating element, the system comprising:

a screw comprising an exterior thread in said clamping area, wherein when said screw is turned said axial slit radially spreads open; and

said clamping device comprises an interior thread in said clamping area that corresponds to said exterior thread.

32. The angle measuring system of claim 31, wherein said screw comprises an axially acting detent surface that is supported against an axial detent during clamping.

33. The angle measuring system of claim 31, wherein said screw is guided through said pick-up shaft from an end opposite said driveshaft, and an end of said pick-up shaft facing said driveshaft has said slit.

34. The angle measuring system of claim 31, wherein said pick-up shaft is rotatably seated in a stator of said angle measuring system, and said stator is connected with a stationary element of said drive unit by a coupling in a manner fixed against relative torsion, but radially and axially resilient.

35. The angle measuring system of claim 34, wherein said coupling is made of spring sheet metal.

36. The angle measuring system of claim 34, wherein said coupling comprises spring arms extending axially and parallel with each other and comprise a parallel guide which is fixed against relative torsion.

37. The angle measuring system of claim 35, wherein said coupling comprises spring arms extending axially and parallel with each other and comprise a parallel guide which is fixed against relative torsion.

38. The angle measuring system of claim 31, wherein said actuating element moves in a helical manner when operative.

REMARKS

A. Status of Claims

Claims 1-4 are pending and added claims 5-38 are pending as of the date of the present Preliminary Amendment.

B. Support for Changes Made to Claims

Support for the replacement of “the” with “an” in line 2 of claim 2 can be found at FIG. 1 and Col. 2, lines 56-63.

Support for the replacement of “the” with “an” in line 3 of claim 2 can be found at FIG. 1 and Col. 2, lines 56-63.

Support for the replacement of “the” with “a” in line 3 of claim 3 can be found at FIG. 1 and Col. 2, lines 28-47.

Support for new claim 5 can be found in FIG. 1 and Col. 2, lines 58-60.

Support for new claim 6 can be found in FIGS. 1-2 and Col. 2, lines 51-63.

Support for new claim 7 can be found in FIGS. 1-2 and Col. 2, lines 16-27 and Col. 2, line 48 to Col. 3, line 3.

Support for new claim 8 can be found in FIG. 1 and Col. 2, lines 56-58.

Support for new claim 9 can be found in FIGS. 1 and 2 and Col. 2, line 66 to Col. 3, line 3.

Support for new claim 10 can be found in FIGS. 1-2 and Col. 2, line 48 to Col. 3, line 3.

Support for new claim 11 can be found in FIG. 1 and Col. 2, lines 63-65.

Support for new claim 12 can be found in FIG. 1 and Col. 2, lines 56-65.

Support for new claim 13 can be found in FIG. 1 and Col. 2, lines 19-47.

Support for new claim 14 can be found in Col. 2, lines 34-35.

Support for new claim 15 can be found in FIG. 1 and Col. 2, lines 34-47.

Support for new claim 16 can be found in FIG. 1 and Col. 2, lines 34-47.

Support for new claim 17 can be found in FIG. 1 and Col. 2, lines 58-60.

Support for new claim 18 can be found in FIGS. 1-2 and Col. 2, lines 51-63.

Support for new claim 19 can be found in FIGS. 1-2 and Col. 2, lines 16-27
and Col. 2, line 48 to Col. 3, line 3.

Support for new claim 20 can be found in FIG. 1 and Col. 2, lines 56-58.

Support for new claim 21 can be found in FIGS. 1 and 2 and Col. 2, line 66 to
Col. 3, line 3.

Support for new claim 22 can be found in FIGS. 1-2 and Col. 2, line 48 to Col.
3, line 3.

Support for new claim 23 can be found in FIG. 1 and Col. 2, lines 63-65.

Support for new claim 24 can be found in FIG. 1 and Col. 2, lines 56-65.

Support for new claim 25 can be found in FIG. 1 and Col. 2, lines 19-47.

Support for new claim 26 can be found in Col. 2, lines 34-35.

Support for new claim 27 can be found in FIG. 1 and Col. 2, lines 34-47.

Support for new claim 28 can be found in FIG. 1 and Col. 2, lines 34-47.

Support for new claim 29 can be found in FIG. 1 and Col. 2, lines 58-60.

Support for new claim 30 can be found in FIGS. 1-2 and Col. 2, lines 51-63.

Support for new claim 31 can be found in FIGS. 1-2 and Col. 2, lines 16-27
and Col. 2, line 48 to Col. 3, line 3.

Support for new claim 32 can be found in FIG. 1 and Col. 2, lines 63-65.

Support for new claim 33 can be found in FIG. 1 and Col. 2, lines 56-65.

Support for new claim 34 can be found in FIG. 1 and Col. 2, lines 19-47.

Support for new claim 35 can be found in Col. 2, lines 34-35.

Support for new claim 36 can be found in FIG. 1 and Col. 2, lines 34-47.

Support for new claim 37 can be found in FIG. 1 and Col. 2, lines 34-47

Support for new claim 38 can be found in FIGS. 1-2 and Col. 2, lines 51-63.

Respectfully submitted,



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